

**CLAIMS**

1       1.     A flame resistant fabric, comprising:  
2           a plurality of inherently flame resistant fibers that were uncrytallized in fiber  
3       form; and  
4           a plurality of cellulosic fibers containing a flame retardant compound;  
5           wherein said inherently flame resistant fibers comprise a material selected from  
6       the group consisting of aromatic polyamide, polyamide imide, polyimide, and mixtures  
7       thereof;  
8           wherein said cellulosic fibers comprise a material selected from the group  
9       consisting of rayon, acetate, triacetate, lyocell, and mixtures thereof.

1       2.     The fabric of claim 1, wherein said inherently flame resistant fibers are  
2       meta-aramid fibers.

1       3.     The fabric of claim 1, wherein said cellulosic fibers are rayon fibers.

1       4.     The fabric of claim 1, wherein said fabric contains a residual amount of  
2       dye-assistant selected from the group consisting of N-cyclohexylpyrrolidone, benzyl  
3       alcohol, N,N-dibutylformamide, and mixtures thereof.

1           5.     The fabric of claim 1, wherein said fabric contains a phosphorus  
2     compound flame retardant in a concentration of at least approximately 1.4% phosphorus  
3     by weight of cellulosic fiber component.

1           6.     The fabric of claim 1, wherein said fabric exhibits a duration of afterflame  
2     no greater than 2.0 seconds when subjected to a vertical flammability test conducted in  
3     accordance with FTMS 191A Method 5903.1 using a three second exposure.

1           7.     The fabric of claim 1, wherein said fabric exhibits a shrinkage percentage  
2     of no greater than approximately 7% after 20 launderings conducted in accordance with  
3     AATCC Test Method 135-1992, Table I (3)(V)(A)(iii).

1           8.     The fabric of claim 1, wherein said inherently flame resistant fibers of said  
2     fabric have been dyed a shade of color which results in an L value between approximately  
3     18 and the greige L value for said fabric if said inherently flame resistant fibers were used  
4     to form a fabric composed exclusively of said inherently flame resistant fibers.

1       9.     A flame resistant fabric, comprising:  
2        a plurality of inherently flame resistant fibers; and  
3        a plurality of cellulosic fibers that contain a flame retardant compound;  
4        wherein said fabric contains a residual amount of a dye-assistant selected from the  
5       group consisting of N-cyclohexylpyrrolidone, benzyl alcohol, N,N-dibutylformamide,  
6       N,N-diethylbenzamide, hexadecyltrimethyl ammonium salt, N,N-dimethylbenzamide,  
7       N,N-diethyl-m-toluamide, N-octylpyrrolidone, aryl ether, an approximately 50/50 blend  
8       of N,N-dimethylcaprylamide and N,N-dimethylcapramide, and mixtures thereof.

1       10.    The fabric of claim 9, wherein said dye-assistant is selected from the group  
2       consisting of N-cyclohexylpyrrolidone, benzyl alcohol, N,N-dibutylformamide, and  
3       mixtures thereof.

1       11.    The fabric of claim 9, wherein said inherently flame resistant fibers  
2       comprise a material selected from the group consisting of aromatic polyamide, polyamide  
3       imide, polyimide, and mixtures thereof.

1       12.    The fabric of claim 9, wherein said inherently flame resistant fibers are  
2       meta-aramid fibers.

1       13.    The fabric of claim 9, wherein said cellulosic fibers comprise rayon,  
2       acetate, triacetate, lyocell, or mixtures thereof.

1       14. The fabric of claim 9, wherein said cellulosic fibers are rayon fibers.

1       15. The fabric of claim 9, wherein said fabric contains a phosphorus  
2       compound flame retardant in a concentration of at least approximately 1.4% phosphorus  
3       by weight of cellulosic fiber component.

1       16. The fabric of claim 9, wherein said fabric exhibits a duration of  
2       afterflame no greater than 2.0 seconds when subjected to a vertical flammability test  
3       conducted in accordance with FTMS 191 Method 5903.1 using a three second exposure.

1       17. The fabric of claim 9, wherein said fabric exhibits a shrinkage percentage  
2       of no greater than approximately 7% after 20 launderings conducted in accordance with  
3       AATCC Test Method 135-1992, Table I (3)(V)(A)(iii).

1       18. The fabric of claim 9, wherein said inherently flame resistant fibers of said  
2       fabric have been dyed a shade of color which would result in an L value between  
3       approximately 18 and the greige L value for said fabric if said inherently flame resistant  
4       fibers were used to form a fabric composed exclusively of said inherently flame resistant  
5       fibers.

1        19.    A flame resistant fabric, comprising:  
2            a plurality of inherently flame resistant fibers that were uncrytallized in fiber  
3            form; and  
4            a plurality of cellulosic fibers that contain a flame retardant compound;  
5            wherein said fabric contains a phosphorus compound flame retardant in a  
6            concentration of at least approximately 1.4% phosphorus by weight of cellulosic fiber  
7            component.

1        20.    The fabric of claim 19, wherein said inherently flame resistant fibers  
2            comprise a material selected from the group consisting of aromatic polyamide, polyamide  
3            imide, polyimide, and mixtures thereof.

1        21.    The fabric of claim 19, wherein said inherently flame resistant fibers are  
2            meta-aramid fibers.

1        22.    The fabric of claim 19, wherein said cellulosic fibers comprise rayon,  
2            acetate, triacetate, lyocell, or mixtures thereof.

1        23.    The fabric of claim 19, wherein said cellulosic fibers are rayon fibers.

1        24.    The fabric of claim 19, wherein said fabric contains a residual amount of  
2            dye-assistant selected from the group consisting of N-cyclohexylpyrrolidone, benzyl  
3            alcohol, N,N-dibutylformamide, and mixtures thereof.

1           25. The fabric of claim 19, wherein said fabric exhibits a duration of  
2 afterflame no greater than 2.0 seconds when subjected to a vertical flammability test  
3 conducted in accordance with FTMS 191A Method 5903.1 using a three second  
4 exposure.

1           26. The fabric of claim 19, wherein said fabric exhibits a shrinkage percentage  
2 of no greater than approximately 7% after 20 launderings conducted in accordance with  
3 AATCC Test Method 135-1992, Table I (3)(V)(A)(iii).

1           27. The fabric of claim 19, wherein said inherently flame resistant fibers of  
2 said fabric have been dyed a shade of color which would result in an L value between  
3 approximately 18 and the greige L value for said fabric if said inherently flame resistant  
4 fibers were used to form a fabric composed exclusively of said inherently flame resistant  
5 fibers.

1           28. A flame resistant fabric, comprising:  
2           a plurality of inherently flame resistant fibers that were uncrytalized in fiber  
3 form; and  
4           a plurality of cellulosic fibers that contain a flame retardant compound;  
5           wherein said fabric exhibits a duration of afterflame no greater than 2.0 seconds  
6 when subjected to a vertical flammability test conducted in accordance with FTMS 191A  
7 Method 5903.1 using a three second exposure.

1           29. The fabric of claim 28, wherein said inherently flame resistant fibers  
2   comprise a material selected from the group consisting of aromatic polyamide, polyamide  
3   imide, polyimide, and mixtures thereof.

1           30. The fabric of claim 28, wherein said inherently flame resistant fibers are  
2   meta-aramid fibers.

1           31. The fabric of claim 28, wherein said cellulosic fibers comprise rayon,  
2   acetate, triacetate, lyocell, or mixtures thereof.

1           32. The fabric of claim 28, wherein said cellulosic fibers are rayon fibers.

1           33. The fabric of claim 28, wherein said fabric contains a residual amount of  
2   dye-assistant selected from the group consisting of N-cyclohexylpyrrolidone, benzyl  
3   alcohol, N,N-dibutylformamide, and mixtures thereof.

1           34. The fabric of claim 28, wherein said fabric exhibits a shrinkage percentage  
2   of no greater than approximately 7% after 20 launderings conducted in accordance with  
3   AATCC Test Method 135-1992, Table I (3)(V)(A)(iii).

1           35. The fabric of claim 28, wherein said inherently flame resistant fibers of  
2    said fabric have been dyed a shade of color which would result in an L value between  
3    approximately 18 and the greige L value for said fabric if said inherently flame resistant  
4    fibers were used to form a fabric composed exclusively of said inherently flame resistant  
5    fibers.

1           36. A flame resistant fabric, comprising:  
2           a plurality of inherently flame resistant fibers that were uncrytalized in fiber  
3    form; and  
4           a plurality of cellulosic fibers that contain a flame retardant compound;  
5           wherein said fabric exhibits a shrinkage percentage of no greater than  
6    approximately 7% after 20 launderings conducted in accordance with AATCC Test  
7    Method 135-1992, Table I (3)(V)(A)(iii).

1           37. The fabric of claim 36, wherein said inherently flame resistant fibers  
2    comprise a material selected from the group consisting of aromatic polyamide, polyamide  
3    imide, polyimide, and mixtures thereof.

1           38. The fabric of claim 36, wherein said inherently flame resistant fibers are  
2    meta-aramid fibers.

1           39. The fabric of claim 36, wherein said cellulosic fibers comprise rayon,  
2    acetate, triacetate, lyocell, or mixtures thereof.

1       40.    The fabric of claim 36, wherein said cellulosic fibers are rayon fibers.

1       41.    The fabric of claim 36, wherein said fabric contains a residual amount of  
2    dye-assistant selected from the group consisting of N-cyclohexylpyrrolidone, benzyl  
3    alcohol, N,N-dibutylformamide, and mixtures thereof.

1       42.    The fabric of claim 36, wherein said inherently flame resistant fibers of  
2    said fabric have been dyed a shade of color which would result in an L value between  
3    approximately 18 and the greige L value for said fabric approximately if said inherently  
4    flame resistant fibers were used to form a fabric composed exclusively of said inherently  
5    flame resistant fibers.

1       43.    A flame resistant fabric, comprising:

2       a plurality of inherently flame resistant fibers that were uncrytalized in fiber  
3    form; and  
4       a plurality of cellulosic fibers that contained a flame retardant compound in fiber  
5    form.

1           44. The fabric of claim 43, wherein said fabric contains a residual amount of a  
2       dye-assistant selected from the group consisting of N-cyclohexylpyrrolidone, benzyl  
3       alcohol, N,N-dibutylformamide, N,N-diethylbenzamide, hexadecyltrimethyl ammonium  
4       salt, N,N-dimethylbenzamide, N,N-diethyl-m-toluamide, N-octylpyrrolidone, aryl ether,  
5       an approximately 50/50 blend of N,N-dimethylcaprylamide and N,N-dimethylcapramide,  
6       and mixtures thereof.

1           45. The fabric of claim 43, wherein said dye-assistant is selected from the  
2       group consisting of N-cyclohexylpyrrolidone, benzyl alcohol, N,N-dibutylformamide, and  
3       mixtures thereof.

1           46. The fabric of claim 43, wherein said inherently flame resistant fibers  
2       comprise a material selected from the group consisting of aromatic polyamide, polyamide  
3       imide, polyimide, and mixtures thereof.

1           47. The fabric of claim 43, wherein said inherently flame resistant fibers are  
2       meta-aramid fibers.

1           48. The fabric of claim 43, wherein said cellulosic fibers comprise rayon,  
2       acetate, triacetate, lyocell, or mixtures thereof.

1        49. The fabric of claim 43, wherein said cellulosic fibers are rayon fibers.

1        50. The fabric of claim 43, wherein said fabric contains a phosphorus  
2        compound flame retardant in a concentration of at least approximately 1.4% phosphorus  
3        by weight of cellulosic fiber component.

1        51. The fabric of claim 43, wherein said fabric exhibits a duration of  
2        afterflame no greater than 2.0 seconds when subjected to a vertical flammability test  
3        conducted in accordance with FTMS 1431 Method 5903.1 using a three second exposure.

1        52. The fabric of claim 43, wherein said fabric exhibits a shrinkage percentage  
2        of no greater than approximately 7% after 20 launderings conducted in accordance with  
3        AATCC Test Method 135-1992, Table I (3)(V)(A)(iii).

1        53. The fabric of claim 43, wherein said inherently flame resistant fibers of  
2        said fabric have been dyed a shade of color which would result in an L value between  
3        approximately 18 and the greige L value for said fabric if said inherently flame resistant  
4        fibers were used to form a fabric composed exclusively of said inherently flame resistant  
5        fibers.

1        54.    A flame resistant fabric, comprising:  
2            a plurality of dyed, inherently flame resistant fibers that were uncolored in fiber  
3            form; and  
4            a plurality of cellulosic fibers that contained a flame retardant compound in fiber  
5            form.

1        55.    The fabric of claim 54, wherein said fabric contains a residual amount of a  
2            dye-assistant selected from the group consisting of N-cyclohexylpyrrolidone, benzyl  
3            alcohol, N,N-dibutylformamide, N,N-diethylbenzamide, hexadecyltrimethyl ammonium  
4            salt, N,N-dimethylbenzamide, N,N-diethyl-m-toluamide, N-octylpyrrolidone, aryl ether,  
5            an approximately 50/50 blend of N,N-dimethylcaprylamide and N,N-dimethylcapramide, .  
6            and mixtures thereof.

1        56.    The fabric of claim 54, wherein said dye-assistant is selected from the  
2            group consisting of N-cyclohexylpyrrolidone, benzyl alcohol, N,N-dibutylformamide, and  
3            mixtures thereof.

1        57.    The fabric of claim 54, wherein said inherently flame resistant fibers  
2            comprise a material selected from the group consisting of aromatic polyamide, polyamide  
3            imide, polyimide, and mixtures thereof.

1        58.    The fabric of claim 54, wherein said inherently flame resistant fibers are  
2            meta-aramid fibers.

1           59.    The fabric of claim 54, wherein said cellulosic fibers comprise rayon,  
2    acetate, triacetate, lyocell, or mixtures thereof.

1           60.    The fabric of claim 54, wherein said cellulosic fibers are rayon fibers.

1           61.    The fabric of claim 54, wherein said fabric contains a phosphorus  
2    compound flame retardant in a concentration of at least approximately 1.4% phosphorus  
3    by weight of cellulosic fiber component.

1           62.    The fabric of claim 54, wherein said fabric exhibits a duration of  
2    afterflame no greater than 2.0 seconds when subjected to a vertical flammability test  
3    conducted in accordance with FTMS 1431 Method 5903.1 using a three second exposure.

1           63.    The fabric of claim 54, wherein said fabric exhibits a shrinkage percentage  
2    of no greater than approximately 7% after 20 launderings conducted in accordance with  
3    AATCC Test Method 135-1992, Table I (3)(V)(A)(iii).

1           64.    The fabric of claim 54, wherein said inherently flame resistant fibers of  
2    said fabric have been dyed a shade of color which would result in an L value between  
3    approximately 18 and the greige L value for said fabric if said inherently flame resistant  
4    fibers were used to form a fabric composed exclusively of said inherently flame resistant  
5    fibers.